Sunbury Recycled Water Plant Upgrade Project

DECEMBER 2016

GROUND WORKS UNDER WAY

The upgrade of the Sunbury Recycled Water Plant (RWP) is progressing, with ground works under way.

What has been happening on site?

Site establishment is now complete with sheds delivered and assembled. An additional car park for staff and construction personnel has been built and a stockpile area for surplus materials established. Earthworks have also begun for the first stage of the project. This has included relocating services such as power and gas in areas where new infrastructure is planned.

In October Downer officially declared the plant a construction site. This means any person working on or visiting the site must undergo a site induction, sign in and out of the site and wear the correct personal protective equipment.

Concrete structures will soon be built for the membrane tank and inlet works.

What should you expect to see?

You may notice an increase in vehicle movement to the site as construction vehicles arrive and materials are delivered.

Coming soon: Community signs

The Sunbury RWP site has a rich cultural history and environmental significance.

Cultural and environmental studies undertaken prior to the project starting found a range of new and interesting information about the site and its environmental values.

New signage will soon be installed along Palomino Drive providing information on the history of the site, its flora and fauna and its current day use.

Above: Example of design and location of community signs being installed along the footpath on Palomino Drive

IN THIS UPDATE

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- Community information signs coming soon
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- Profiling: Membrane bioreactors
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HOW TO STAY INFORMED

Let us know if you'd like to be added to the contact list for the Sunbury RWP Upgrade Project:

- Mail - PO Box 2371, Sunbury DC Vic 3429
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FS-SUNBURYRWPUPGRADE DEC-2016

For more information call 1300 650 422 or visit us at westernwater.com.au

WESTERN WATER

UPDATE

Membrane bioreactors: A new approach to wastewater treatment in Sunbury

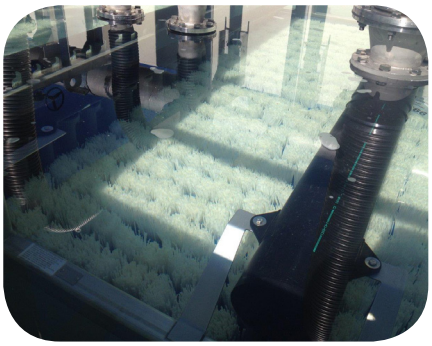
How do membrane bioreactors work?

Wastewater received at the plant is first screened and then biologically treated. This is followed by high quality filtration (ultrafiltration) to remove all particles and bacteria.

Puron membranes installed as part of the upgrade will make this ultrafiltration possible.

How is this different to the existing plant?

Membrane bioreactors are a new technology and treatment process for Sunbury. They will improve the quality of the recycled water produced at the plant.



Above: Membrane tank similar to that which will be installed at the Sunbury Recycled Water Plant

What are the benefits of using this technology?

• Requires a significantly smaller area compared to conventional filtration methods

• More reliable and requires less cleaning

• Energy savings

• Acts as a barrier to bacteria

• Produces clearer, higher quality recycled water

• A secondary clarifier is no longer needed, reducing equipment costs.

How do the membranes filter the water?

The membranes consist of fibres that are sealed at the top (see left).

Biologically treated wastewater is drawn from the outside of the membrane fibres and flows through the inside of these fibres, as through a straw.

The liquid (known as filtrate) is exceptionally high quality water, ready for reuse.

Technical information

- The nominal pore size of the membrane fibres is 0.03µm.* This is 10 times smaller than the smallest general bacteria (0.5 µm) and therefore ensures effective filtration of particles and bacteria.
- The outside diameter of one of the fibres (straws) is 2.6mm.
- There will be 24 membrane modules on site, each module has a membrane surface area of 1,800m2.
- Total installed membrane area: 43,200m2. This is equivalent to 34.5 olympic swimming pools.

* A µm or micron is one one-hundredth of a millimetre.

Aboriginal artefacts collected and protected

An Aboriginal quarry was known to exist in close proximity to the Sunbury RWP. We have carried out a detailed assessment of the area, and a Cultural Heritage Management Plan (CHMP) has been developed.

This plan sets out strict protection requirements, approved by the Wurrundjeri Tribe Land and Compensation Cultural Heritage Council.

One of the requirements was to locate and collect any artefacts that could be damaged by the upgrade works.

Artefacts found at the Sunbury RWP site have been catalogued and taken away by an archeologist. Collection of the artefacts was supervised by members of the local Registered Aboriginal Party (RAP).

A key part of the plan was to create awareness of the cultural history and protection requirements. As part of this, all project staff have undertaken a Cultural Heritage induction.

The rock silcrete, which is very common at the Sunbury RWP, was a preferred material for Aboriginal toolmakers.

A suitable piece of rock, known as the core, was selected. It was struck by a second piece, the hammerstone, to chip off smaller thin pieces of stone called flakes. This process had one of two aims - to chip off a usable flake, or to shape the core itself into a tool.

The flaking process produces a large amount of stone material, including unused flakes (wastage) and used flakes. The picture at right shows a core found at the Sunbury RWP including up to 17 marks where the core was struck by a hammerstone.

Above: A core rock, used for Aboriginal toolmaking, found at the Sunbury RWP.